Remarks/Arguments

Claim Summary

By this Amendment, claims 5-7 have been revised, and claims 16 and 17 have been added for the Examiner's consideration.

Claims 1-3, 5-7, 9-11 and 12-17 are now pending in the application.

35 U.S.C. ¶102

Claims 1, 7, 9 and 10 were rejected under 35 U.S.C. ¶102 as being anticipated by Kado (US 2003/0150713). Applicants respectfully traverse this rejection.

The Examiner apparently contends that Kado discloses a method of sputtering a tungsten film from a tungsten target onto a semi-conductor wafer including using krypton as a sputter gas wherein the resistivity of the tungsten films is less than 11 μohm cm. The Examiner specifically contends that the resistivity is an "inherent property", since allegedly the same materials are treated in the same manner as the claimed invention.

Applicants respectfully disagree. Specifically, Kado is directed to a process for depositing a tungsten oxycarbide coating on metal or ceramic objects, such as machine tools, dies and machine parts. The purpose of the coating is to wear, welding and/or corrosion resistance. As one can see at paragraph 0020 of Kado, the tungsten target is first sputtered with a mixture of argon and another gas, which can be krypton, and then reacted with the reactive gas in order to form the tungsten oxycarbide film. As they are not forming a film of tungsten, it is not an inherent property that the resistivity will be less than 11 μohm cm. As one skilled in the art will readily expect, the presence of carbon and oxygen will significantly disrupt the lattice within the as-deposited tungsten oxycarbide film, thus significantly increasing resistivity.

For at least the reasons stated above, Applicants respectfully contend that independent claims 1 and 7, and the claims dependent thereon, are not anticipated by Kado.

35 U.S.C. ¶103 – Claims 2, 3, 5 and 6

Claims 2, 3, 5 and 6 were rejected under 35 U.S.C. ¶103 as being unpatentable over Kado. Applicants respectfully traverse this rejection.

The rejection of claims 2, 3, 5 and 6 relies on the Examiner's erroneous assumption that the deposited film of Kado inherently has a resistivity of less than 11 μohm cm. As explained above, the Examiner is incorrect in this regard.

Further, Applicants respectfully contend that the Examiner has not established a *prima facie* case of obvious with respect to the process conditions defined by claims 2, 3, 5 and 6. Contrary to the Examiner's assertion, the specification contain ample description of the impact attributable to the pressure, temperature, power and platen bias.

For at least the reasons stated above, Applicants respectfully contend that claims 2, 3, 5 and 6 are not obvious in view of Kado.

35 U.S.C. ¶103 – Claims 13-15

Claims 13-15 were various rejected under 35 U.S.C. ¶103 as being unpatentable over Kado in view of Taguwa (US 6800543) and Matsumoto et al. (US 6451690). Applicants respectfully traverse this rejection.

The Examiner acknowledges that Kado does not form a tungsten/tungsten nitride stack and further does not disclose two films being sputtered in a single chamber using a single target. However, the Examiner contends Taguwa shows the first of these features, while Matsumoto shows the latter. The Examiner apparently contends that it would obvious to modify Kado accordingly.

Applicants respectfully disagree. Kado is directed to deposition of hard coating on metal or ceramic objects, such as machine tools, dies and machine parts. The purpose of the coating is to wear, welding and/or corrosion resistance. Specifically, Kado is directed to the deposition of tungsten oxycarbide coating for this purpose.

There is nothing in the references of record to suggest the tungsten/tungsten nitride stack of Taguwa (for semiconductors) might somehow be suitable in place of the protective tungsten oxycarbide coating of Kado. Clearly, one of ordinary skill would not modify the teachings of the cited references in this manner.

For at least the reasons stated above, Applicant contend that claims 13-15 are not obvious in view of Kado, Taguwa and Matsumoto et al.

Further, new dependent claims 16 and 17 define the resistivity of the tungsten film as being less than 11μohm cm. Thus, Applicants contend that these claims further define over the cited references for the same reasons stated above in connection with the rejection under 35 U.S.C. ¶102.

Conclusion

No other issues remaining, reconsideration and favorable action upon the claims 1-3, 5-7, 9-11 and 12-17 now pending in the application are requested.

Respectfully submitted,

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